

Environmental Assessment and Review Framework

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Kingdom of Cambodia: Rural Roads Improvement Project II

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ACRONYMS

ADB	Asian Development Bank
DDIS	detailed design and implementation supervision
EARF	environmental assessment and review framework
EIA	environmental impact assessment
EMP	environmental management plan
IEE	initial environmental examination
IRC	interministerial resettlement committee
km	kilometer
m	meters
m/s	meter per second
MOE	Ministry of Environment
MRD	Ministry of Rural Development
PDRD	Provincial Department of Rural Development
PMU	project management unit
RRIP	Rural Roads Improvement Project
SEO	Social and Environmental Office
SPS	Safeguards Policy Statement
TA	technical assistance

I. INTRODUCTION

A. Background

1. The Connectivity Improvements for Mekong River Island Output is consistent with and contributes to the goals of the Rural Road Policy and Strategy of the Ministry of Rural Development (MRD), Cambodia in particular, to improve connectivity between road and water transport.

2. On each of the islands, the roads are a network from which the most important to provide better connectivity have been selected for improvement or rehabilitation. For Kaoh Mitt, connectivity to the new Ministry of Public Works and Transport (MPWT) bridge, which is under construction, is the highest priority. This imminent permanent high quality and preferential link has been considered in deciding which roads on Kaoh Mitt, Kaoh Soutin and Kaoh Thmei have the highest priority for improvement. A concrete bridge has been proposed to connect Kaoh Mitt to Kaoh Soutin. For Kaoh Thmei, connectivity by ferry boat is still required when water levels are high. Hand-built concrete roads, similar to those that exist, have been designed for improvement or rehabilitation. Most of the existing concrete roads will be retained because they are suitable and they represent the communities' investment in their own future. The inventory of existing roads has been prepared.

3. The Output proposes the improvement of 50 kilometers (km) of roads using hand-laid concrete and the improvement of 11 jetties, 7 on the islands and 4 connecting jetties on the mainland. It also proposes the construction of a 350 meter concrete bridge between Kaoh Mitt and Kaoh Soutin as the only means of all year connectivity. Any other solution would mean that connectivity is lost for several months of the year.

4. The aesthetics and natural beauty of the islands will be preserved. No high embankments will be constructed except for a short length (1.3 km) on Kaoh Samraong, through an area that is not populated. Other than minor adjustments, existing road levels have been retained. The majority of existing cross drainage and all the existing small bridges require replacement. This is recommended for all roads on the islands, not only those that are on the roads that will be improved to ensure connectivity.

5. Natural and man-made drainage channels to reservoirs or other exits for water will be cleared or improved to reduce localized flooding in populated areas. Levees will be rehabilitated. Water pumping systems will be provided to provide water and remove excess water where possible.

6. Resettlement, other than some minor temporary losses, at worst, will not be required because the existing road widths are adequate.

7. Jetties that provide a vehicle service and are accessible all year will be rehabilitated and made permanent, durable, and sustainable. They will have associated floating jetties for small boats that do not have loading ramps. Other jetties which can only serve connectivity across long stretches of exposed sandy soils by way of bamboo-mats have been avoided. These are likely to provide less than all-year service.

8. Public ownership with management either by MRD for the roads, or the Governor of Kampong Cham Province for the jetties, is essential. The intention is to provide the required

connectivity and preserve and improve the residential nature of the islands, as well as improve the access to community services and to business aspects of the life of the communities. Road safety risks will remain low. Retaining low traffic speeds, but achieving shorter journey times, are key to achieving this.

9. Safety, both at the jetties and during the water crossing, is essential. Surveys have been undertaken which indicate the current situation and, therefore, what is required for improved and safer services in the future.

10. The planned engineering solutions take account of the likely effects of climate change and minimize consequential damage and loss of connectivity. A climate change adaptation framework has been prepared and is aligned with the strategic directions set out in MRD's draft Strategic Plan of Rural Development for Climate Change Adaptation in Cambodia. This includes: ensuring transport mobility and access to critical services during extreme events, particularly floods; ensuring safe access to water during climate extremes, such as drought; and ensuring sustainable and diverse rural livelihoods to reduce vulnerability to climate change.

11. A climate change adaptation framework has been developed using a livelihoods centered approach, focusing on the complex ways that people ensure their livelihoods. This includes emphasis on poor people, women and children. Alternative livelihoods are an adaptation strategy to reduce the vulnerability of communities to climate shocks. Information from existing data has been assessed include those data related to water, micro-finance and income diversification and access to critical services. Data has also been collected from the climate change modeling being undertaken on other projects and from detailed socio-economic surveys which included a climate change focus on socio-economic coping strategies.

12. The Climate Change Adaptation Output for the Rural Roads Improvement Project¹ has contributed considerable information that assists in understanding the risks from climate change including flooding.

13. The climate change adaptation framework provides an adaptation cost table for consultant's services and civil works which is included in this Environmental Assessment and Review Framework (EARF). The Output will be implemented over 5 years, from 2014 to 2018. The periods for implementing the civil works on the islands differ according to the amount of work to be undertaken on each island. The sub-outputs, which are here designated activities, are described below.

B. Purpose of the EARF

14. Consistent with ADB's Safeguards Policy Statement (SPS, 2009), this EARF shall apply to all components, projects, and subprojects to be prepared after MRD approval. This EARF has been developed and agreed with MRD to ensure that the Project shall comply with the provisions of the SPS. The EARF provisions shall guide MRD in the selection, screening and categorization, environmental assessment, and preparation and implementation of safeguard plans (such as an environmental management plan [EMP]) of Mekong River Islands Output activities. The preparation of environmental assessment documents shall follow the procedures outlined in this EARF. Since the environmental assessment reports and EMPs to be prepared for the Project are the Borrower's documents, these documents shall be officially submitted and

¹ ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Kingdom of Cambodia for the Rural Roads Improvement Project*. Manila

endorsed by MRD to ADB.

C. Overview of Subprojects/Activities

i. Activity 1: Income Diversification for Climate Change Resilience

15. The local economy is currently almost exclusively reliant on agriculture for income, and on limited varieties of cash crops, dominated by tobacco. Further, few people have savings which can be used to buffer them against losses from climate events. For example, one of the top concerns for individuals during floods and drought is a lack of food. A lack of cash to invest in higher education limit the ability of villagers to break the cycle of poverty, increasing their vulnerability and their environment becomes increasingly challenging.

16. Some local tourism exists but the islands benefit little from these visits as spending does not take place on the islands by tourists, in part, because the tourism services are lacking. Increased demand for socially conscious tourism exists and the islands are aesthetic and so could attract a niche market. However, little is known about the true tourism potential and market that exists. For example, one of the current draws to the islands now is the bamboo bridge in Kaoh Mitt, which will likely be abandoned once the new bridge is constructed further downstream. This may reduce the draw to the island. A better understanding of the profile of the potential tourist and the demands, such as restaurants, guesthouses, and activities, is needed before undertaking such a venture. Therefore a market study is proposed, in line with any form of business development activity. The focus will be on environmentally and socially friendly activities.

17. Villagers interviewed, including commune leaders and women, had few ideas outside of agriculture for income generation. Further, people are skeptical of the success of small businesses and are lacking capital required. In addition, asking people to engage in new businesses is highly risky for them, and so must be supported technically, must originate from them, and be incrementally and gradually developed based on existing capacities. These are important to sustainability of income generation activities. A multi-year local entrepreneurship training and support program is, therefore, proposed to enable locally generated small business ventures. This will be accompanied by a contest and investment award for small business proposals by communities.

18. The major tasks to be implemented are:

- (i) community-based tourism potential assessment.
- (ii) entrepreneurship and small business development study and training program, focusing on women and youth. These could include vocational training, field based training, and site visits.
- (iii) development of MRD credit and awards program for climate resilient small business development proposals.
- (iv) small business operations support program.

19. A balance on gender and youth will be applied as a criterion. Proposals must also provide added value to existing income generating activities, be environmentally friendly and resilient to climate change impacts.

ii. Activity 2: Reducing Vulnerability of Agricultural to Climate Change

20. Of those who practice agriculture, crop loss takes place during both floods and drought periods, and quantity, either too much or too little water, is the main challenge. This may be exacerbated through climate change and putting measures in place to manage these challenges now will help manage future impacts. Reducing the cost of irrigation through solar pumps in Activity 3 below will increase affordability and, therefore, access for all. Further, it will reduce the burden of hand-carrying well water, thereby freeing up more time for other livelihood development activities.

21. This Activity will focus on physical measures to divert and store excess water during the rainy season, reducing crop losses. It will also pilot micro-irrigation systems to reduce water consumption during the dry season.

22. The major tasks to be implemented are:

- (i) construct drainage canals in lowland areas to reduce flood damage during rainy season.
- (ii) pilot efficient micro-irrigation.
- (iii) pilot solar pumping systems for irrigation during drought periods.
- (iv) erosion control

23. Water user groups will be established in each project area. The group committees will be responsible for managing the collection of tariffs and managing the overall system. The committee should be representative on the population demographics.

iii. Activity 3: Renewable Energy

24. Some of the causes identified for food shortages include the fact that the local agriculture is dominated by cash crops. Vegetable growth exists but is limited due to land, time, and water shortage. Women have also said that their previous attempts produced poor quality products. There is also no rice production on the islands, though some cassava and corn is grown, but mostly for sale on the markets. With little savings, crop loss due to either floods or drought means that there is insufficient income for people to purchase food, or to trade their agricultural products for food. By increasing other sources of income from non-climate dependent activities, and reducing operating costs, households will be able to save more money.

25. Household energy needs are for cell phone charging, lighting, and televisions. The largest expense for income generating activities is diesel for irrigation and fertilizer inputs. Energy costs are relatively high on the island because they are not connected to the grid because of their remoteness and because of a lack of economy of scale for small local producers. This sub-output will focus on reducing the cost of energy for household and agricultural activities, thereby increasing savings so that individuals have greater protection against a subsistence way of living. A group purchase can be supported through a dedicated micro-credit scheme, building on existing successful programs run by MRD.

26. Improved irrigation was named as the number one solution to managing changes to the

rainy season and extended dry periods. A pilot introduction of solar powered pumping systems, for which the technology exists in Cambodia, will be introduced. Unit costs are high and out of reach for these communities. MRD can make an important contribution in this way.

27. The major tasks to be implemented are:

- (i) detailed assessment of renewable energy potential and most appropriate technologies for local conditions.
- (ii) create rent to own program in cooperation with the private sector for group-buy small-scale solar home systems or rent to own program with technical support, warranties, and replacement parts.
- (iii) install solar lighting systems for ferry landings to increase length of operating times and increase safety, as well as for emergency response stakeholders.
- (iv) train local youth and current energy suppliers to repair and maintain solar systems.

28. This sub-output will, in particular, reduce some of these barriers by: (i) beginning as a pilot phase in order to increase awareness, (ii) reducing initial capital costs through group buying, (iii) offering rent to own systems, and (iv) providing technical support and training, involving current local energy providers.

iv. Activity 4: Improved Health and Safety during Climate Extremes

29. The primary concerns for communities during floods are lack of food, lightning strikes, and stomach problems. During the dry seasons, the main health problems include a lack of potable water, lack of food, and stomach problems. This output will put in place measures to reduce impacts on human health, assuming that climate change may increase the intensity and duration of these two hazards.

30. Approximately 50% of the population on the islands has no sanitation of any kind. This may be one source of health problems experienced by many. Overflow of existing latrines and movement of human waste into the drinking water supply is one of the more common side effects of floods. Increasing sanitation coverage by constructing elevated latrines and elevated ring wells, to avoid wastewater overflows, may reduce the spread of disease. For the same reasons, the clinics or commune leaders, in the case of Kaoh Pir, should be equipped to distribute water purification tablets when needed. The need for clean potable water is especially evident in Kaoh Pir, based on surveys and gender consultations. Water filter systems are needed as a replacement for a water and sanitation system that would, otherwise, be provided by government as a service to the population. Lack of food during climate extremes will be addressed by creating emergency supplies. In addition, reduced household and agricultural operating costs should provide individuals with more savings to purchase food when crops fail.

31. The main concern that people have in getting to hospitals during emergencies is that the hospitals are too far; secondly, that they are unsafe; and thirdly that they do not have transport. A minimum of 90% of respondents identified concerns with hospital access for emergencies. The issue of distance is especially acute for Kaoh Pir where pregnant women will move to stay near the hospital a month before delivery because of the uncertainty. While this output cannot

construct hospitals, it can create time-savings through improved mobility. This will take place by creating the physical infrastructure, and also by providing emergency speedboats and vehicles (identified as a priority over boats in Kaoh Pir).

32. The major tasks to be implemented are:

- (i) awareness program and emergency response plan, including services safe areas for humans and animals.
- (ii) sanitation training program for reducing health risks during floods and drought.
- (iii) increase sanitation with raised latrines and ring-wells in flood prone areas.
- (iv) provide water purification tablets to clinics for distribution.
- (v) water filters distributed for potable water.
- (vi) supply multi-purpose emergency hospital access and emergency response. A committee will be developed to include a prioritized list of uses for the boats and its utilization will be accountable to an established committee.

33. The commune leaders have offered to reserve community development funds to manage the operations of the emergency transport, including fuel costs.

v. Cost Estimate

34. The total expected budget is \$4,334,800 of which \$1,834,800 would include consultancy services and \$2,500,000 will include investment costs for equipment and civil works (see tables below).

**Table 1: Adaptation Framework Cost Estimate
– Consulting Services for Design and Implementation**

Item	Total Cost (\$)
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants (27 person months)	560,000
ii. National Consultants (56 person months)	350,000
b. International and Local Travel	31,400
c. Reports and Communications	5,000
2. Training, Seminars, and Conferences	30,000
3. Surveys and data acquisition	46,000
4. Miscellaneous Administration and Support Costs	12,400
5. Micro-finance facility	400,000
6. Sub-contracts under international firm (tourism potential study, entrepreneurship, renewable energy potential study)	400,000
Total	1,834,800

Table 2: Adaptation Framework of Investments

Subsector/activity	Investment Type	Total Cost (\$)
Activity 1. Income Diversification		
Activity 2. Agriculture	Task 2.1 Construct canals	500,000
	Task 2.2 Micro-irrigation	200,000
	Task 2.3 Solar water pumping	100,000
	Task 2.4 Erosion Control	500,000
Activity 3. Renewable Energy	Task 3.3 Solar Navigation lighting	100,000
Activity 4. Health and Safety	Task 4.3 Flood protected latrines and shallow wells	700,000
	Task 4.5 Water filters	100,000
	Task 4.7 Emergency Transport	300,000
Total		2,500,000

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. Environmental Clearance Requirements

35. In 1993, a new Cambodian Constitution was written and, for the first time, environmental considerations were included. Specifically, Article 59 *inter alia* states: “*The State shall protect the environment and balance of abundant natural resources and establish a precise plan of management of land, water, air, wind, geology, ecological system, mines, energy, petrol and gas, rock and sand, gems, forests and forestry products, wildlife, fish and aquatic resources*” and it was within this constitutional context that the Ministry of Environment (MOE) was established. The mission of the MOE is, *inter alia*, to promote environmental protection and conservation of natural resources through the Kingdom, thus contributing to improving environmental quality, public welfare, national culture, and the economy. This has to be seen in the context of the Royal Government of Cambodia’s three pillars of development, one of the three pillars being the sustainable use of natural resources and sound environmental management to reduce poverty and improve the livelihoods of all Cambodians.

36. Cambodia has entered into the following international agreements on Environment:

- International Conventions and Agreements Kyoto Protocol, ratified 2002
- United Nations Framework Convention on Climate Change, ratified 1995; Initial National Communication 2000; Second National Communication (2012)
- Convention on Biological Diversity 1995
- Cartagena Protocol on Biosafety 2003
- United Nations Convention to Combat Desertification, ratified 1997
- Convention on International Trade in Endangered Species of Wild Fauna and Flora) 1997
- World Heritage Convention 1991
- Association of Southeast Asian Nations (ASEAN) Heritage Convention (National Parks: Bokor and Virakchey) (regional) 2003
- Convention on the Prevention of Marine Pollution from Ships 1994
- Measures on prevention of climate change, ozone depletion, on freshwater resource protection and on sustainable forest, ASEAN 1999
- Convention on Wetlands of International Importance (RAMSAR)² 1999

² RAMSAR is an international treaty for the conservation and sustainable utilization of wetlands.

- Basel Convention on Control, Transport and Disposal of Transboundary Hazardous Waste 2001
- Stockholm Convention on Persistent Organic Pollutants 2001
- Vienna Convention and Montreal Protocol on Substances that Deplete Ozone Layer 2001

37. In 1996, the Law on Environmental Protection and Natural Resource Management (No: NS/RKM/1296/36) came into force and it requires the government to prepare national and regional environmental plans and sub-decrees concerning a wide range of environmental issues, including environmental impact assessments (EIA), pollution prevention and control, public participation and access to information. Other ministries that were explicitly mentioned at the time included the Ministry of Water Resources, Hydrology, and Meteorology (MOWRAM), and the Ministry of Land Use Management, Urbanization, and Construction, but by the end of the 1990s, the list had been expanded to include MPWT, Ministry of Agriculture, Forestry, and Fisheries, MRD, the Ministry of Health, and the Ministry of Tourism. On 11 August 1999, a sub-decree (No: 72 ANRK.BK) on EIA Processes was promulgated requiring submission of an initial EIA (IEIA) or EIA for selected projects listed in the sub-decree annex to be submitted by project owners – public or private – to the MOE for review. The list of selected projects is given below.

Table 3: List of Projects that require an Initial Environmental Impact Assessment

No.	Type and activities of the projects	Size/capacity
A. INDUSTRIAL		
a.	Foods, Drinks, Tobacco	
1.	Food processing and caned	≥ 500 Tons/year
2.	All fruit drinks manufacturing	≥ 1,500 Liters / day
3.	Fruit manufacturing	≥ 500 Tons/year
4.	Orange Juice manufacturing	All sizes
5.	Wine manufacturing	All sizes
6.	Alcohol and Beer brewery	All sizes
7.	Water supply	≥ 10,000 Users
8.	Tobacco manufacturing	≥ 10,000 Boxes/day
9.	Tobacco leave processing	≥ 350 Tons/ year
10.	Sugar refinery	≥ 3,000 Tons/ year
11.	Rice mill and cereal grains	≥ 3,000 Tons / year
12.	Fish, soy bean, chili, tomato sources	≥ 500,000 Liters/ year
b.	Leather tanning, Garment and Textile	
1.	Textile and dyeing factory	All sizes
2.	Garments, washing, printing, dyeing	All size
3.	Leather tanning, and glue	All sizes
4.	Sponge- rubber factory	All sizes
c.	Wooden production	
1.	Plywood	≥ 100,000 m ³ /year(log)
2.	Artificial wood	≥ 1,000 m ³ /year (log)
3.	Saw mill	≥ 50,000 m ³ /year (log)
d.	Paper	
1.	Paper factory	All sizes
2.	Pulp and paper processing	All sizes
e.	Plastic, Rubber and Chemical	
1.	Plastic factory	All sizes
2.	Tire factory	≥ 500 Tons /year
3.	Rubber factory	≥ 1,000 Tons /year
4.	Battery industry	All sizes
5.	Chemical production industries	All sizes

No.	Type and activities of the projects	Size/capacity
6.	Chemical fertilizer plants	≥ 10,000 Tons /year
7.	Pesticide industry	All sizes
8.	Painting manufacturing	All sizes
9.	Fuel chemical	All size
10.	Liquid, powder, solid soaps manufacturing	All sizes
f.	Mining production other than metal	
1.	Cement industry	All sizes
2.	Oil refinery	All sizes
3.	Gas factory	All sizes
4.	Construction of oil and gas pipeline	≥ 2 Kilometres
5.	Oil and gas separation and storage facilities	≥ 1,000,000 Liters
6.	Fuel stations	≥ 20,000 Liters
7.	Mining	All sizes
8.	Glass and bottle factory	All sizes
9.	Bricks, roofing tile manufacturing	150,000 piece /month
10.	Flooring tile manufacturing	90,000 piece /month
11.	Calcium carbide plants	All sizes
12.	Producing of construction materials(Cement)	900 tons/month
13.	Cow oil and motor oil manufacturing	All sizes
14.	Petroleum study research	All sizes
g.	Metal industries	
1.	Mechanical industries	All sizes
2.	Mechanical storage factory	All sizes
3.	Mechanical and shipyard enterprise	All sizes
h.	Metal Processing Industrials	
1.	Manufacturing of harms, barbed wires, nets	≥ 300 tons/month
2.	Steel mill, Irons, Aluminum	All sizes
3.	All kind of smelting	All sizes
i.	Other Industries	
1.	Waste processing, burning	All sizes
2.	All Waste water treatment plants sizes	
3.	Power plants	≥ 5 MW
4.	Hydropower	≥ 1 MW
5.	Cotton manufacturing	≥ 15 Tons/month
6.	Animal's food processing	≥ 10,000 Tons/year
B.	AGRICULTURE	
1.	Concession forest	≥ 10,000 Hectares
2.	Logging	≥ 500 Hectares
3.	Land covered by forest	≥ 500 Hectares
4.	Agriculture and agro-industrial land	≥ 10,000 Hectares
5.	Flooded and coastal forests	All sizes
6.	Irrigation systems	≥ 5,000 Hectares
7.	Drainage systems	≥ 5,000 Hectares
8.	Fishing ports	All sizes
C.	TOURISM	
1.	Tourism areas	≥ 50 Hectares
2.	Golf Course	≥ 18 Holes
D.	INFRASTRUCTURE	
1.	Urbanization development	All sizes
2.	Industrial zones	All sizes
3.	Construction of bridge-roads	≥ 30 Tons weight
4.	Buildings	Height ≥ 12 m or floor ≥ 8,000 m ²
5.	Restaurants	≥ 500 Seats
6.	Hotels	≥ 60 Rooms
7.	Hotel adjacent to coastal area	≥ 40 Rooms

No.	Type and activities of the projects	Size/capacity
8.	National road construction	≥ 100 Kilometers
9.	Railway construction	All sizes
10.	Port construction	All sizes
11.	Airport construction	All sizes
12.	Dredging	≥ 50,000 m ³
13.	Dumping site	≥ 200,000 people

m = meter, m² = square meter, m³ = cubic meter, MW = megawatt

38. The Sub-decree No 72 Annex “List of the projects that require an Initial Environmental Impact Assessment” refers to “National Road Construction ≥ 100 Kilometers and bridges ≥ 30 tons”, and “irrigation and drainage projects ≥ 5,000 hectares.” As this project is rehabilitation of existing roads, construction of jetties, no bridges and minor drainage and irrigation works, an IEE will not be required to be submitted to MOE.

39. In 2008, the Kingdom of Cambodia introduced its Protected Area Law (No. NS/RKM/0208/007), which defines protected areas as (i) national parks; (ii) wildlife sanctuaries; (iii) protected landscapes; (iv) multiple use areas; (v) Ramsar sites; (vi) biosphere reserves; (vii) natural heritage sites; and, (viii) marine parks.

40. None of the islands where activities are planned are located in ecologically sensitive or legally protected areas. There are no protected cultural or national heritage structures within the area of the activities.

B. Institutions Responsible for Approval of Environmental Assessment Reports

41. The Output area is within the jurisdiction of MOE, for land areas, and MOWRAM, for water areas. It is also of interest to the Mekong River Commission. Each are being consulted and informed, as necessary, and formal documents, such as letters of no objection, have been requested, as appropriate. The Cambodian Mekong River Committee has indicated that the activities do not affect the Mekong River to any extent and they have no objections. No separate approvals are required from other ministries.

C. Institutional Capacity Assessment

42. An EMP, detailing mitigation measures and monitoring activities, has been prepared as part of the IEE. Temporary environmental impacts caused by the civil works have been identified and mitigation measures are given in the EMP. To ensure that the project is carried out in accordance with the EMP requirements, MRD will specify details of the implementation of the EMP in the tender documents and civil works contracts. The EMP (and Environmental Management and Monitoring Plan) will form part of the tender documents which becomes legally binding on the selected contractor.

43. The activities will be implemented by MRD as the Implementing Agency. MRD contains a Social and Environmental Office (SEO). There are currently 7 staffs within SEO: 1 Chief, 1 Vice chief, 1 Resettlement, 2 Environment and 2 Gender persons. They will be responsible for supervising adherence to the requirements

44. The table below shows the institutional responsibilities for implementation of the EMP.

Table 4: Responsibilities for EMP Implementation

Agency	Responsibilities
MRD	<ul style="list-style-type: none"> • Executing agency, shall ensure that sufficient funds are available to properly implement the EMP; • Ensure that all Project components, regardless of financing source, complies with the provisions of the EMP and SPS; • Ensure that Project implementation complies with Government environmental policies and regulations; • Ensure that tender and contract documents include the EMP; • Develop further the capabilities of the SEO during Project implementation; and • Submit semi-annual monitoring reports on EMP implementation
PMU/SEO	<ul style="list-style-type: none"> • Responsible for overall project implementation, management and coordination; • Include the EMP in the tender and contract documents; • Ensure that EMP provisions are strictly implemented during various project phases (design/pre-construction, construction and operation) to mitigate environmental impacts to acceptable levels; • Undertake monitoring of the implementation of the EMP (mitigation and monitoring measures) with assistance from DDIS; • With support from DDIS, prepare semi-annual environmental monitoring reports for submission to ADB; • Ensure that Project implementation complies with SPS principles and requirements; • Train and retain dedicated staff for the SEO to oversee EMP implementation; • Ensure that environmental protection and mitigation measures in the EMP are incorporated in the detailed design; • Obtain necessary approval(s) from MOE prior to award of civil works contracts e.g. quarries; • Prior to start of site works, establish an environmental grievance redress mechanism, as described in the IEE, to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the Project's environmental performance; • With assistance from DDIS, prepare semi-annual environmental monitoring reports for submission to ADB; and • Based on the results of EMP monitoring, identify environmental corrective actions and prepare a corrective action plan, as necessary, for submission to ADB
DDIS	<ul style="list-style-type: none"> • Incorporate into the project design the environmental protection and mitigation measures identified in the EMP for the design/pre- construction stage; • Assist PMU/SEO to ensure that all environmental requirements and mitigation measures from the IEE and EMP are incorporated in the bidding documents and contracts; • Prior to start of site works, assist MRD in establishing a grievance redress mechanism as described in the IEE; • Implement all mitigation and monitoring measures for various project phases specified as DDIS's tasks in the EMP; • Undertake environmental management capacity building activities for SEO as required in the EMP; • Undertake regular monitoring of the contractor's environmental performance as scheduled in the EMP; and • Conduct field measurements for surface water quality, dust and noise as required in the EMP.
Contractor	<ul style="list-style-type: none"> • Provide sufficient funding and human resources for implementation of the EMP; • Ensure proper and timely implementation of required pre-construction and construction mitigation measures in the EMP; and • Implement additional environmental mitigation measures, as necessary.
PDRD	<ul style="list-style-type: none"> • Responsible for operation and maintenance of Project road.
MOE	<ul style="list-style-type: none"> • Issue necessary approvals to the Project prior to implementation e.g. quarries; and • Undertake monitoring of the Project based on their mandate.

ADB = Asian Development Bank, DDIS = detailed design and implementation supervision, EMP = environmental management plan, IEE = initial environmental examination, MOE = Ministry of Environment, MRD = Ministry of Rural Development, PDRD = Provincial Department of Rural Development, PMU = project management unit, SEO = social and environmental office, SPS = Safeguards Policy Statement.

D. Capacity Building

45. The staff of MRD assigned to the SEO requires practical training to develop the in-depth knowledge required to be able to function as an effective SEO for MRD. The SEO will then provide social and environmental safeguards training and pro-poor approaches on rural transport issues to each of the Provincial Departments of Rural Roads (PDRD). The provision of this capacity building support is included under this project. The tasks of the detailed design and implementation supervision (DDIS) tasks will include:

- i) Strengthen the capabilities of the staff in the SEO at MRD,
- ii) Establish links and cooperation between the SEO and MOE, and other concerned agencies,
- iii) Prepare training materials and train SEO staff in the scope and detail of their responsibilities, and
- iv) Prepare the SEO staff so they can inform and train staff of other offices of MRD and PDRDs

III. ANTICIPATED ENVIRONMENTAL IMPACTS

46. Based on the screening of baseline environmental parameters on the five islands as described in the Mekong River Island Output IEE report for the Rural Roads Improvement Project II (RRIP II), adverse environmental and social impacts that could be expected from the Mekong River Island Output subprojects are broadly classified into three categories during preconstruction, construction, and during operation. The environmental assessment report to be prepared for Mekong River Island Output subprojects will include an EMP to address anticipated negative impacts which include, but are not limited to the following.

- (i) Preconstruction
 - a) Land acquisition issues for new right-of-way areas although this is expected to be minimal
 - b) Compensation for any fixed assets from acquired land areas
- (ii) Construction
 - a) Clearing of right of way, removal of vegetation (such as trees and shrubs, etc.) and disposal of spoils
 - b) Extraction and transport of construction material which may require use of boat transport
 - c) Temporary use of land for siting of contractor's yard and construction camps
 - d) Reduced air quality and visibility, and noise pollution from construction activities, material storage sites, temporary diversion roads, excavations, vehicle and equipment use and concrete batching plant
 - e) Reduced water quality and soil pollution at areas close to construction sites from improper handling of and disposal of wastes and materials
 - f) Drainage from construction camps, material stockpiles, and excavations
 - g) Interruption to smooth traffic flow, and road safety issues

- h) Occupational health and safety, community welfare, and social conflicts due to project activities
- (iii) Operation
 - a) Increased traffic speed, related air, and noise
 - b) Road safety and vehicle overloading

IV. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS AND/OR COMPONENTS

A. Environmental Criteria for Subproject Selection

47. The criteria for selecting the subprojects include the following:

- Proposed subprojects must comply with the Government's environmental legislation and SPS
- The subprojects shall not involve any new alignments and land acquisition, if possible, but if necessary, full compensation will be awarded in accordance with the Resettlement Framework
- Full and thorough public consultation will have taken place with all stakeholders and any dissenting opinions shall be fully documented.

B. Environmental Assessment Process

48. The environmental assessment requirements to be followed for Mekong River Island Output subprojects, as well as components to be prepared after MRD approval, shall be consistent with the SPS. The environmental assessment report shall be prepared by MRD and approved by ADB during RRIP II implementation and prior to ADB's approval of the periodic financing request for RRIP II.

C. Screening

49. Environmental categorization shall be determined by ADB and shall be made at the level of individual financing tranche. Categorization shall follow ADB policy and guidelines and shall be based on the most environmentally sensitive subprojects for financing under each tranche (e.g. if one of the many subprojects proposed for funding under a tranche has potential for significant adverse environmental impacts and is classified as category A, the entire tranche will be classified as category A). Based on ADB's classification system, the project may be assigned to one of the following categories:

- (i) Category A. A proposed project is classified as category A and an EIA is required if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works.
- (ii) Category B. A proposed project is classified as category B and an IEE is required if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects.

- (iii) Category C. A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.

50. In view of the “soft” nature of some the activities such as micro credit, the “environmental enhancement” effect of some activities such as use of solar power, and the small scale of the civil works, such as water pumping and irrigation, it is considered that part of the activities will be category C and some category B. As stated above, this means that the sub projects in total will be considered category B. Environmental impacts are considered minimal.

D. Preparation of Environmental Assessment Report

51. Depending on the project categorization approved by ADB, either an EIA or IEE shall be prepared by MRD for Mekong River Island Output Subprojects. The environmental assessment shall be consistent with the SPS. Particular attention must be paid to biodiversity conservation and sustainable management of natural resources, pollution prevention and abatement, occupational and community health and safety, and conservation of physical cultural resources.

52. The environmental assessment report shall include an EMP detailing the following: (i) mitigation measures for all identified adverse impacts during pre-construction, construction, and operations stages of the Activities, (ii) monitoring measures to assess environmental performance and impacts to the environment, (iii) implementation arrangements including responsibilities, schedule, capacity building program when necessary, estimated costs, and source of funds

V. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

A. Public Consultation

53. As required under the SPS, public consultation is a mandatory part of environmental assessment of category B projects. The aim of the consultation is to provide stakeholders with activity information, gather environmental issues that stakeholders may have on the project, and to ensure that valid concerns are addressed in the IEE. For category B, MRD shall conduct at least one public consultation during IEE preparation. During consultations, MRD shall engage with local communities or groups affected by the proposed project, as well as nongovernment organizations, local government, and other concerned parties. A variety of approaches that may be employed for consultations include public meetings, focus group discussions, workshops, and public information campaigns. ADB shall determine if adequate public consultation has been made and may require additional consultations, as necessary.

54. The environmental assessment report will document details of the public consultation by providing details of the environmental issues and concerns raised by stakeholders, and by indicating how these will be addressed in the project design and mitigation measures. Proofs of consultations, such as attendance sheets and minutes of meetings, will be included in the documentation and photographs of the meetings.

B. Information Disclosure

55. MRD shall be responsible for ensuring that all environmental assessment documents

and environmental monitoring reports are properly and systematically kept as part of the project record. MRD shall make these documents available in a form, language, and at a location in which they can be easily accessed by stakeholders.

56. ADB requirements are that the following safeguard documents shall be prepared and submitted by MRD to be posted on ADB's website:

- (i) For environment category A project, draft EIA at least 120 days before the financing request for RRIP II is approved by ADB;
- (ii) Final EIA upon receipt replacing the draft EIA
- (iii) For environmental category B, project final IEE upon receipt of ADB approval
- (iv) New or updated EIA or IEE reports if prepared to reflect significant changes in the project during design or implementation
- (v) Corrective action reporting plan prepared during project implementation to address unanticipated environmental impacts and to rectify non-compliance to EMP provisions
- (vi) Environmental monitoring reports submitted by MRD during project implementation upon receipt from consultants and contractors.

C. Grievance Redress Mechanism

57. Any grievances or conflicts will be resolved at the village level, as much as possible. However, if the affected households are not satisfied with the decision at the village level, their issue and/or case can be elevated at the district level up to the provincial level and ultimately to the central level. The project grievance redress mechanism for this Project will operate as follows:

- (i) First stage: affected persons will present their complaints and grievances verbally or in writing to the village and commune chief or interministerial resettlement committee (IRC) working group. The village and commune chief and IRC working group will provide immediate written confirmation of receiving the complaint. If after 15 days the aggrieved affected person does not hear from them, or if the affected household is not satisfied with the decision taken in the first stage, the complaint may be brought to the District Office.
- (ii) Second stage: The District Office has 15 days within which to resolve the complaint to the satisfaction of all concerned. If the complaint cannot be solved at this stage, the District Office will bring the case to the Provincial Grievance Redress Committee.
- (iii) Third stage: The Provincial Grievance Redress Committee meets with the aggrieved party and tries to resolve the situation. Within 30 days of the submission of the grievance, the Committee must make a written decision and submit copies to the MRD, PDRD, IRC and the affected household.
- (iv) Final stage: If the aggrieved affected household does not hear from the Provincial Grievance Redress Committee or is not satisfied, he or she will bring the case to Provincial Court. This is the final stage for adjudicating complaints. If any party is still unsatisfied with the Provincial Court judgment, he or she can bring the case to a higher-level court.

58. In relation to any affected ethnic minority households, the same procedures as above apply. However, so far, the social surveys do not indicate the presence of any ethnic minorities.

VI. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

A. Responsibilities and Authorities

59. The responsibilities for the preparation, submission, review, and clearance of environmental assessment report for RRIP II or additional components are presented below.

60. MRD will ensure that all subprojects are assessed and implemented in accordance with the SPS. Prior to approval of RRIP II additional components, MRD will submit to ADB a draft environmental assessment report (EIA or IEE) consistent with the environmental categorization approved by ADB. The responsibilities of MRD in carrying out the EARF provisions for RRIP II are as follows:

- (i) Select the subprojects based on the environmental criteria specified in Chapter IV of this EARF.
- (ii) Accomplish the Rapid Environmental Assessment (REA) checklist and submit to ADB for approval of environmental categorization.
- (iii) Work with technical assistance (TA) consultants in preparing the environmental assessment report based on the provisions of this EARF and the SPS.
- (iv) Undertake adequate consultation with affected people and other stakeholders in accordance with ADB requirements.
- (v) Submit the draft environmental assessment report to ADB for review and approval.
- (vi) In coordination with the consultants, revise the environmental assessment report in a manner satisfactory to ADB.
- (vii) Obtain necessary environmental permits and/or clearance, as required, from relevant government agencies, ensuring that all necessary regulatory clearances are obtained in a timely manner.
- (viii) Ensure that the EMP is incorporated in the bid and contract documents for civil works and that its provisions are implemented properly and in a timely manner.
- (ix) Prepare and implement a corrective action plan to address unpredicted environmental impacts and/or non-compliance to EMP during project implementation.
- (x) Submit to ADB semi-annual reports on implementation of the EMP.
- (xi) For subprojects or components likely to have significant environmental impacts (category A), engage qualified and experienced external expert(s) to undertake annual verification of the monitoring information submitted to ADB. Such expert shall not be involved in day-to-day project implementation or supervision nor employed by any firm which has been contracted for the construction phase of the Project.

61. The Project Management Unit (PMU) under MRD shall have the following responsibilities:

- (i) Undertake day-to-day management and implementation of the Project.
- (ii) Ensure that all environmental mitigation and monitoring measures are carried out in accordance with the EMP.
- (iii) Ensure that the contractor prepares a site-specific EMP (SEMP) and/or construction EMP (CEMP) before commencement of site works.
- (iv) Monitor the environmental performance of contractors and prepare environmental monitoring reports.

62. ADB shall be responsible for the following:
- (i) Review the REA checklist prepared by MRD and determine the environmental categorization of RRIP II, Mekong River Island Output, and sub project activities. Advise MOE on the type and extent of environmental assessment report to be prepared based on the approved categorization and the SPS requirements.
 - (ii) Review and approve environmental assessment report.
 - (iii) Review and approve SEMP and/or CEMP before commencement of site works.
 - (iv) Disclose environmental assessment reports and environmental monitoring reports based on the SPS requirements.
 - (v) Undertake review of environmental monitoring reports submitted by MRD and conduct regular review missions during implementation to determine compliance with EMP and the SPS.

B. Staffing and Budget

63. A project preparatory TA will be funded by ADB for the feasibility study and safeguards requirements of Mekong River Island Output additional activities. It will be carried out during RRIP II implementation. Environmental consultants shall be recruited, if necessary, to prepare the environmental assessment reports consistent with this EARF and the SPS. The environmental consultants shall closely coordinate with MRD and other relevant agencies during preparation of the environmental assessment report.

VII. MONITORING AND REPORTING

64. The EMP will be part of the overall project monitoring and supervision, and will be mainly implemented by the contractor with oversight from MRD and/or PMU. MRD shall ensure that the contractors undertake timely and proper EMP monitoring and reporting. MRD will submit reports on EMP implementation to ADB on a semi-annual basis.